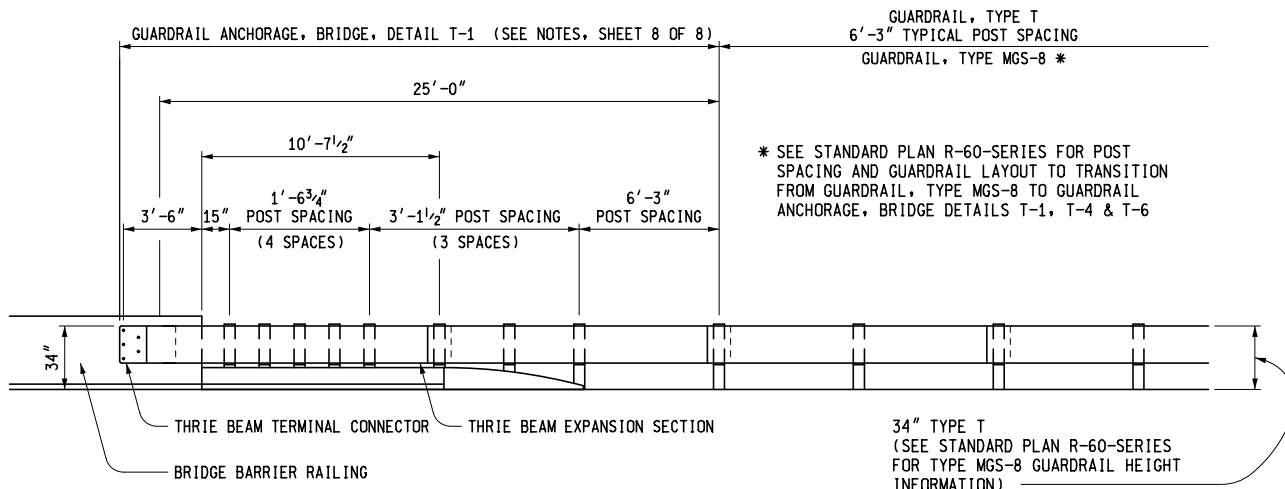
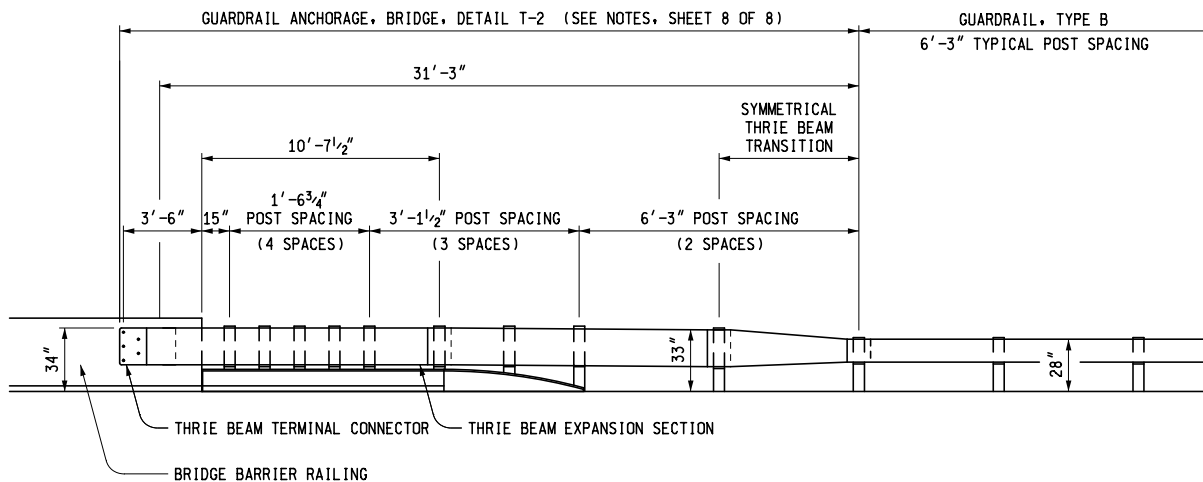


PLAN VIEW



ELEVATION VIEW
(TO BE USED WITH GUARDRAIL, TYPE T & TYPE MGS-8)



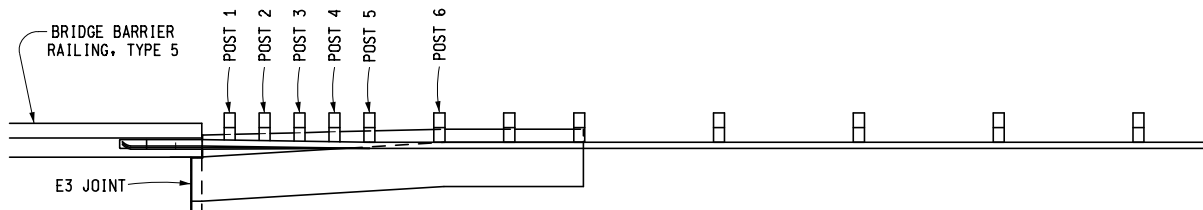
ELEVATION VIEW
(TO BE USED WITH GUARDRAIL, TYPE B)

**DETAILS FOR CONNECTING GUARDRAIL TO
BRIDGE BARRIER RAILINGS, TYPE 4, 2-TUBE, 4-TUBE,
AESTHETIC PARAPET TUBE, OR 3 TUBE WITH PICKETS
(WITHOUT EXPANSION AT BACKWALL)**

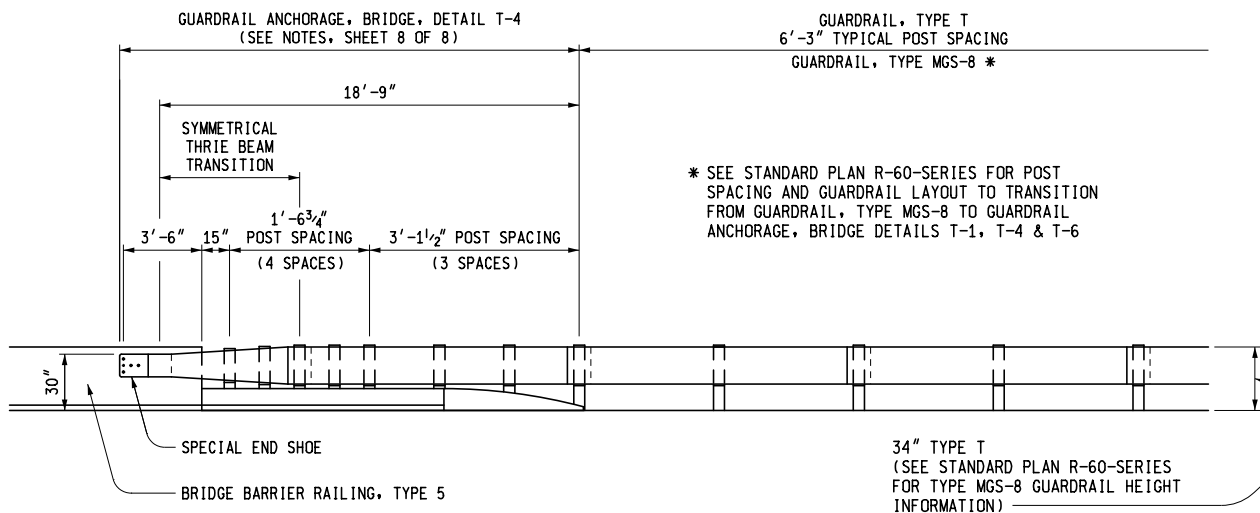
GUARDRAIL ANCHORAGE, BRIDGE, DETAILS

R-67-G-LAP

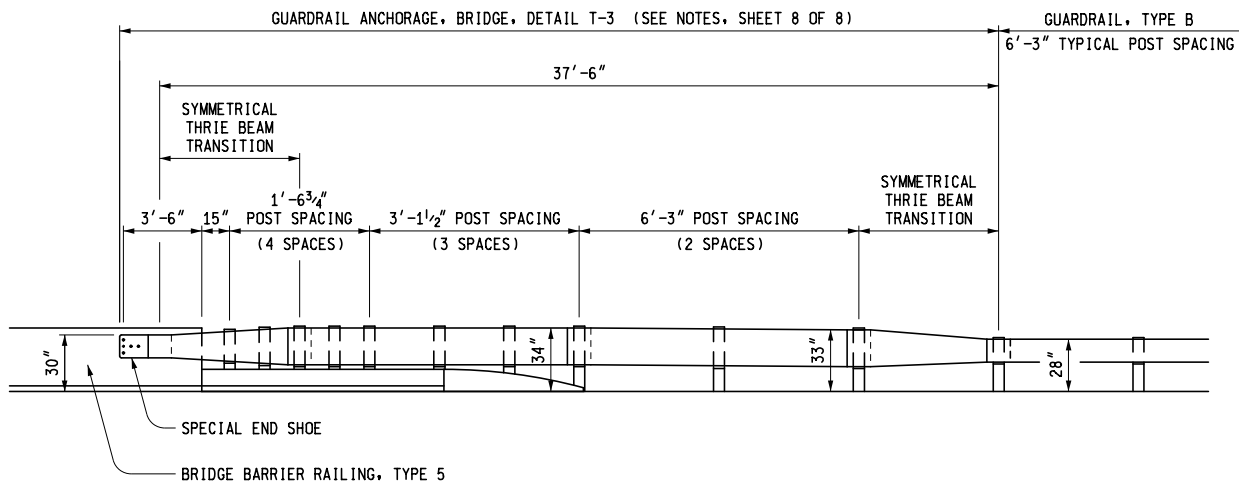
SHEET
1 OF 8



PLAN VIEW



ELEVATION VIEW
(TO BE USED WITH GUARDRAIL, TYPE T & TYPE MGS-8)



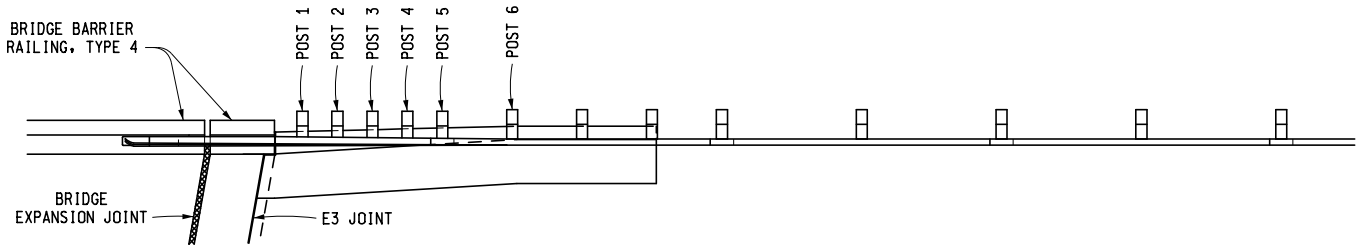
ELEVATION VIEW
(TO BE USED WITH GUARDRAIL, TYPE B)

DETAILS FOR CONNECTING GUARDRAIL TO BRIDGE BARRIER RAILINGS, TYPE 5
(WITHOUT EXPANSION AT BACKWALL)

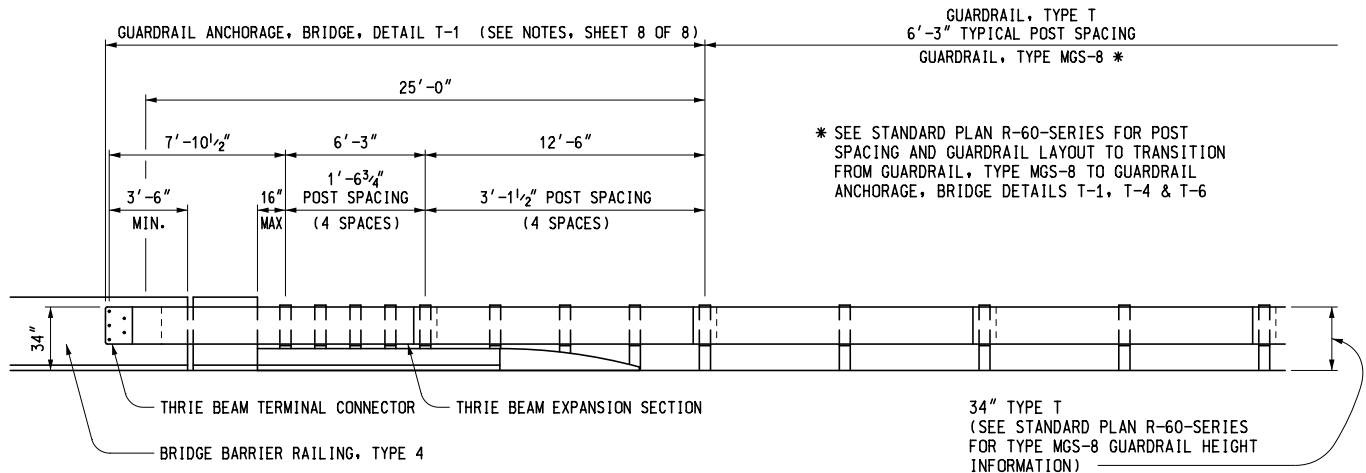
GUARDRAIL ANCHORAGE,
BRIDGE, DETAILS

R-67-G-LAP

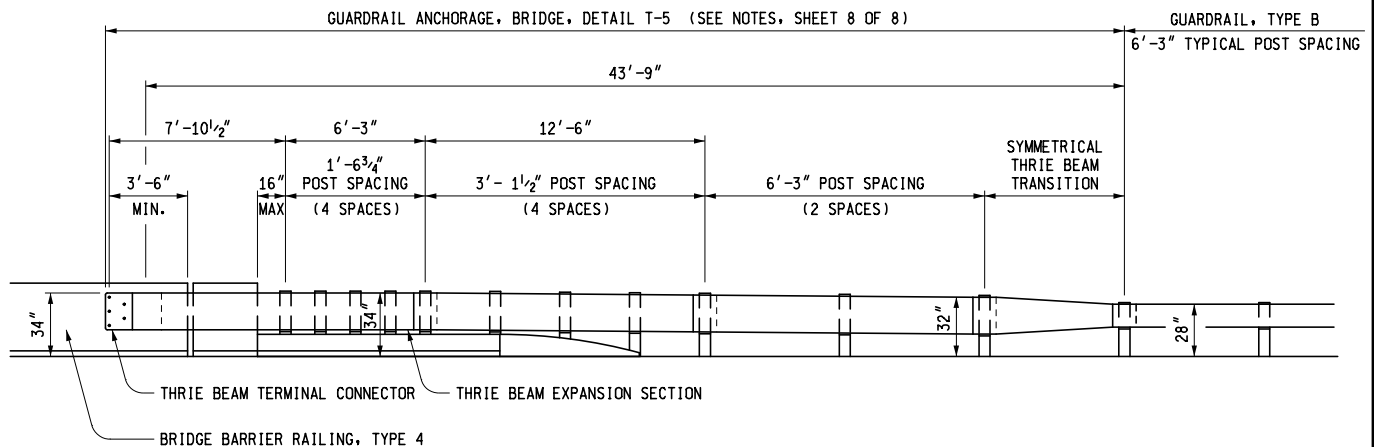
SHEET
2 OF 8



PLAN VIEW



ELEVATION VIEW
(TO BE USED WITH GUARDRAIL, TYPE T & TYPE MGS-8)



ELEVATION VIEW
(TO BE USED WITH GUARDRAIL, TYPE B)

**DETAILS FOR CONNECTING GUARDRAIL TO
BRIDGE BARRIER RAILINGS, TYPE 4, 2-TUBE, 4-TUBE,
AESTHETIC PARAPET TUBE, OR 3 TUBE WITH PICKETS
(WITH EXPANSION AT BACKWALL)**

GUARDRAIL ANCHORAGE, BRIDGE, DETAILS

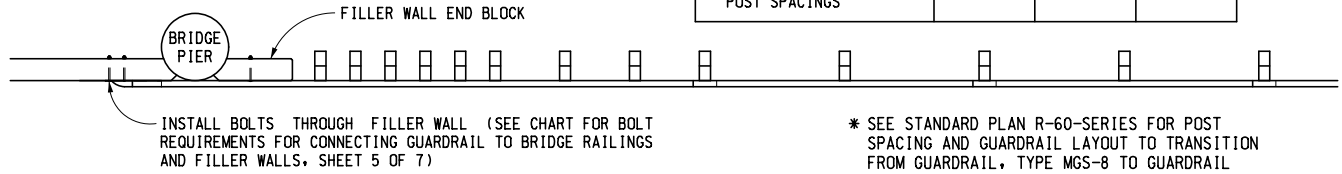
R-67-G-LAP

SHEET
3 OF 8

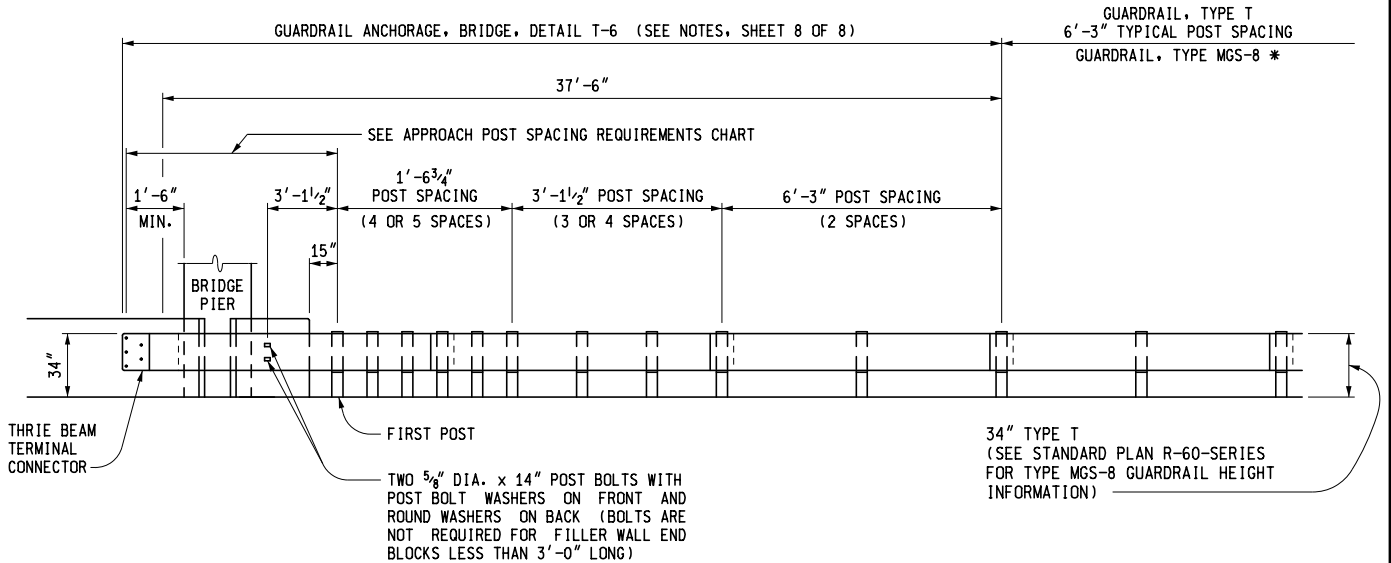
NOTE: FILLER WALL END BLOCK MAY BE OMITTED WHEN FIRST ANCHORAGE POST CAN BE INSTALLED FULL DEPTH 1'-3" FROM BRIDGE PIER.

APPROACH POST SPACING REQUIREMENTS

DISTANCE FROM ANCHOR BOLTS TO FIRST POST	7'-11 $\frac{3}{4}$ "	9'-6 $\frac{1}{2}$ "	11'-1 $\frac{1}{4}$ "
NUMBER OF 1'-6 $\frac{3}{4}$ " POST SPACINGS	4	5	4
NUMBER OF 3'-1 $\frac{1}{2}$ " POST SPACINGS	4	3	3

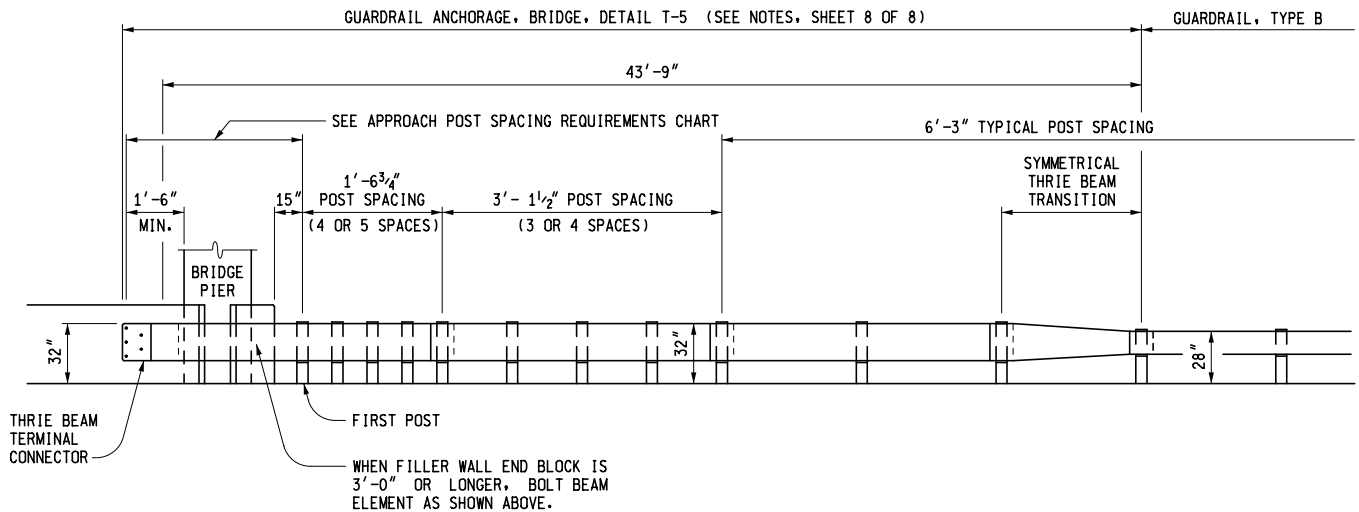


PLAN VIEW



ELEVATION VIEW

(TO BE USED WITH GUARDRAIL, TYPE T & TYPE MGS-8)



ELEVATION VIEW

(TO BE USED WITH GUARDRAIL, TYPE B)

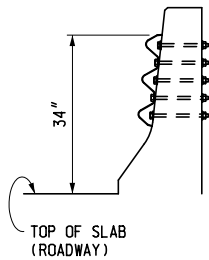
DETAILS FOR CONNECTING GUARDRAIL TO FILLER WALLS

GUARDRAIL ANCHORAGE, BRIDGE, DETAILS

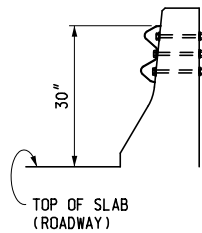
R-67-G-LAP

SHEET
4 OF 8

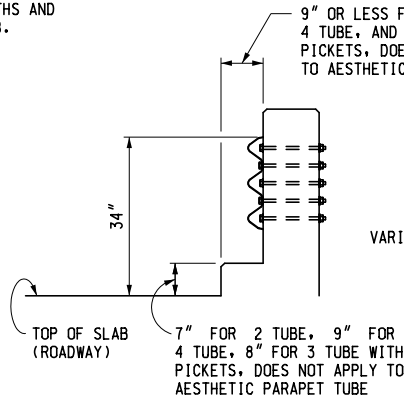
HIGH STRENGTH $\frac{7}{8}$ " DIA. HEX HEAD BOLT AND NUTS SHALL BE USED TO CONNECT GUARDRAIL TO BRIDGE RAILINGS WITH ROUND WASHERS ON FRONT AND SQUARE WASHERS ON BACK. (SEE CHART BELOW FOR LENGTHS AND NUMBER REQUIRED.) WASHER DETAILS ARE SHOWN ON SHEET 6 OF 8.



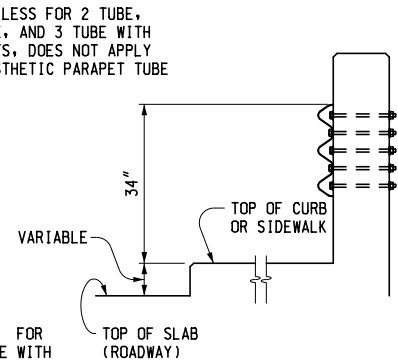
BRIDGE BARRIER
RAILING TYPE 4



BRIDGE BARRIER
RAILING TYPE 5

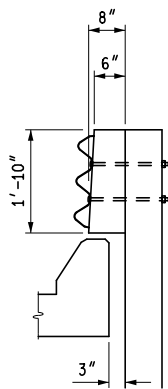


BRIDGE RAILING, 2 TUBE,
4 TUBE, 3 TUBE WITH PICKETS
OR AESTHETIC PARAPET TUBE
(WITHOUT SIDEWALK OR BRUSH BLOCK)

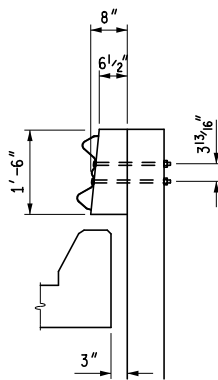


BRIDGE RAILING, 4 TUBE,
3 TUBE WITH PICKETS OR
AESTHETIC PARAPET TUBE
(WITH SIDEWALK)

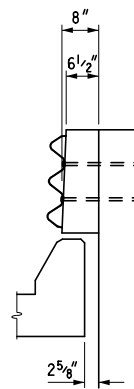
SECTIONS AT BRIDGE RAILINGS



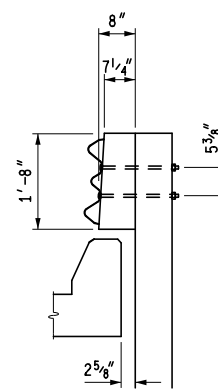
POST 1 FOR
BRIDGE BARRIER
RAILING, TYPE 4



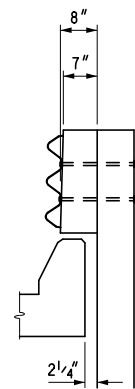
POST 1 FOR
BRIDGE BARRIER
RAILING, TYPE 5



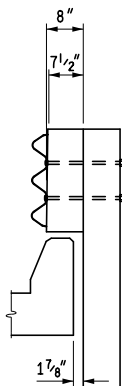
POST 2 FOR
BRIDGE BARRIER
RAILING, TYPE 4



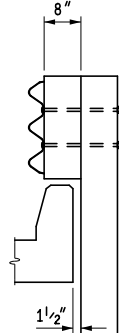
POST 2 FOR
BRIDGE BARRIER
RAILING, TYPE 5



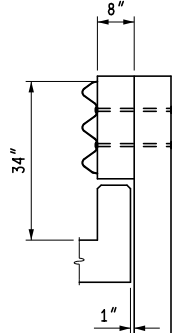
POST 3



POST 4



POST 5



POST 6

BOLT REQUIREMENTS FOR CONNECTING GUARDRAIL TO BRIDGE RAILINGS & FILLER WALLS

BRIDGE RAILING	BOLT LENGTH	MINIMUM THREAD LENGTH	NUMBER REQUIRED
TYPE 4	12 1/2"	4"	5
TYPE 5	11 1/2"	4"	4
2 TUBE	WALL THICKNESS + 2"	2"	5
4 TUBE	WALL THICKNESS + 2"	2"	5
3 TUBE WITH PICKETS	WALL THICKNESS + 2"	2"	5
AESTHETIC PARAPET	WALL THICKNESS + 2"	2"	5
** FILLER WALL	WALL THICKNESS + 2"	2"	5

SHORTER BOLT LENGTHS MAY BE USED PROVIDED THE BOLT EXTENDS $\frac{1}{4}$ " BEYOND THE NUT WHEN TIGHTENED.

** THE USE OF $\frac{7}{8}$ " DIA. ADHESIVE ANCHORED BOLTS EMBEDDED 8" TO ATTACH GUARDRAIL TO FILLER WALLS WILL BE ALLOWED, INSTEAD OF BOLTING THROUGH THE FILLER WALL, IN THE FOLLOWING LOCATIONS:

1. AT OR NEAR THE JOINT LINE WHEN A FILLER WALL IS A DIFFERENT THICKNESS THAN THE FILLER WALL EXTENSION.
2. IN EXISTING FILLER WALLS THICKER THAN 1'-6".
3. WHEN CONDITIONS PROHIBIT THE USE OF BOLTS.

GUARDRAIL POST SECTIONS FOR GUARDRAIL ANCHORAGE, BRIDGE

NOTE: ADHESIVE ANCHORS SHALL BE SELECTED FROM THE QUALIFIED PRODUCTS LIST OF THE MATERIALS SAMPLING GUIDE.

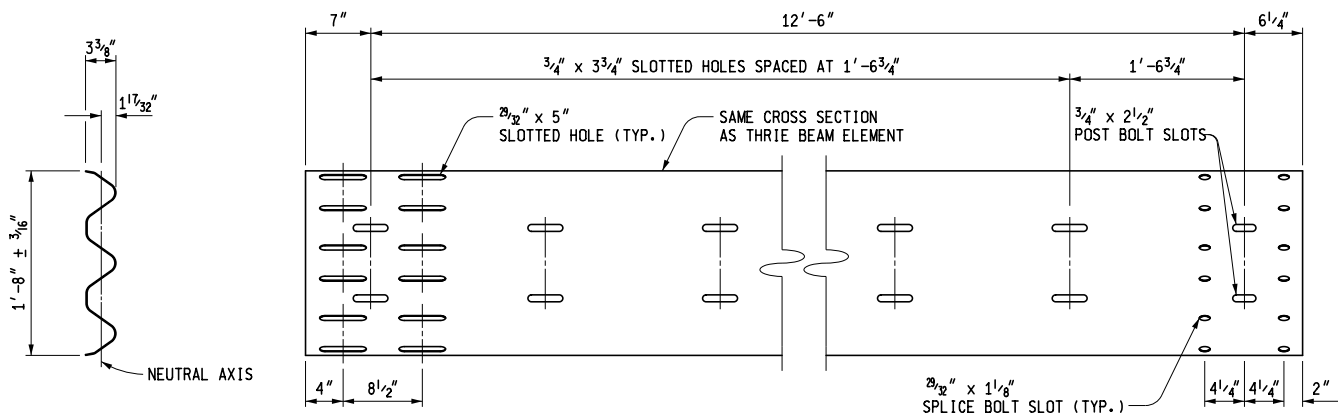
NOTE:

POST AND BLOCK SECTIONS FOR THE SINGLE FACE, CONCRETE BARRIER, AND THE 2 TUBE, 4 TUBE, 3 TUBE WITH PICKETS AND AESTHETIC PARAPET TUBE BRIDGE RAILINGS SHALL BE THE SAME AS THAT SHOWN ON POST 6. POST SPACING SHALL BE AS SHOWN IN ELEVATION VIEWS.

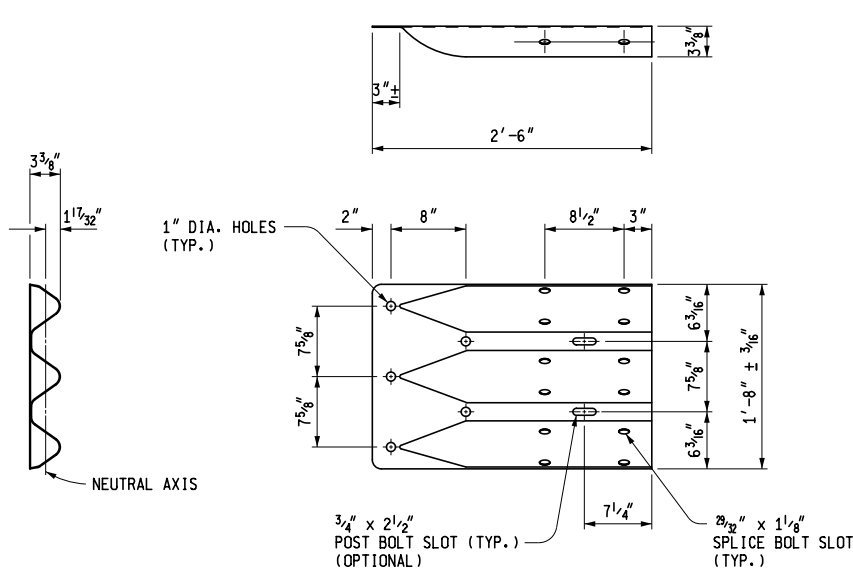
GUARDRAIL ANCHORAGE, BRIDGE, DETAILS

R-67-G-LAP

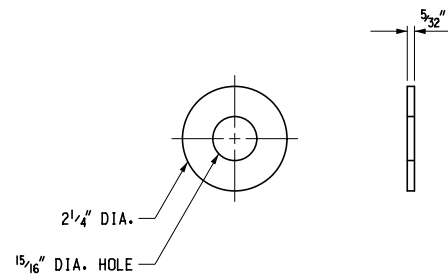
SHEET
5 OF 8



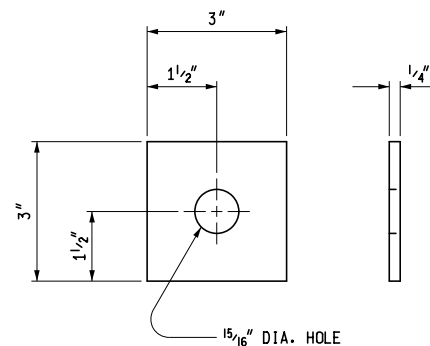
THRIE BEAM EXPANSION SECTION



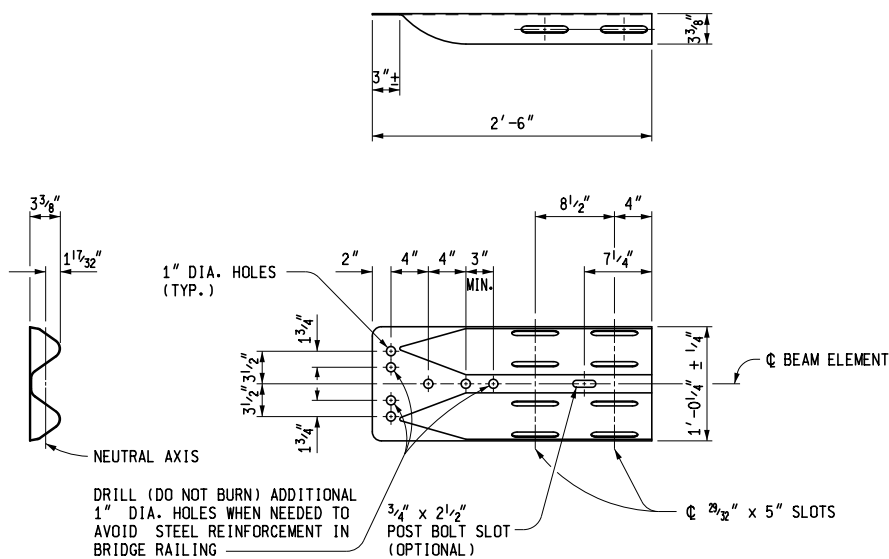
THRIE BEAM TERMINAL CONNECTOR



ROUND WASHER FOR 7/8" DIA. BOLTS



SQUARE WASHER FOR 7/8" DIA. BOLTS

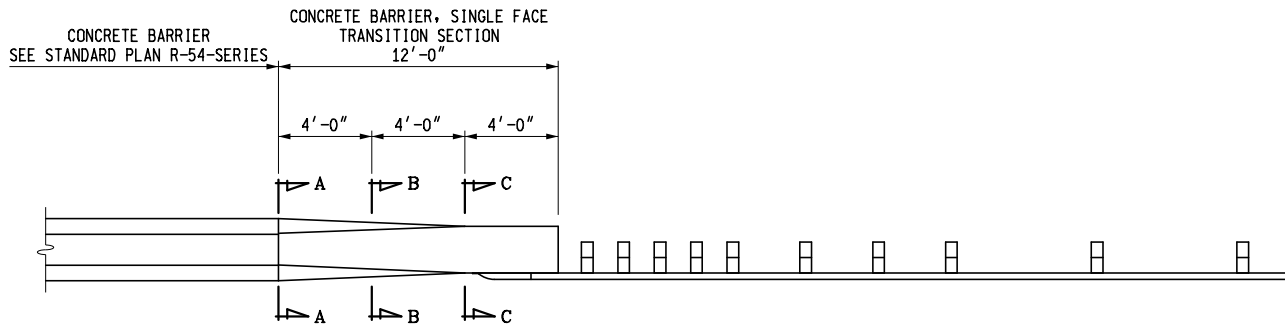


SPECIAL END SHOE

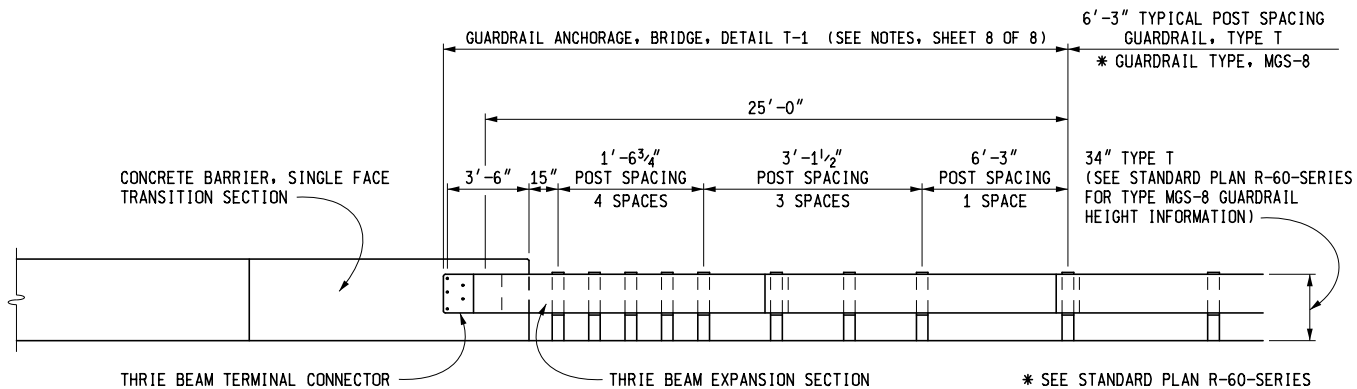
GUARDRAIL ANCHORAGE,
BRIDGE, DETAILS

R-67-G-LAP

SHEET
6 OF 8

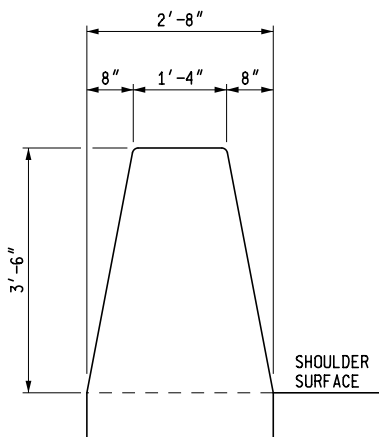


PLAN VIEW

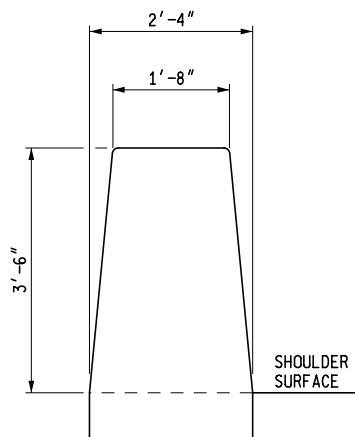


ELEVATION VIEW

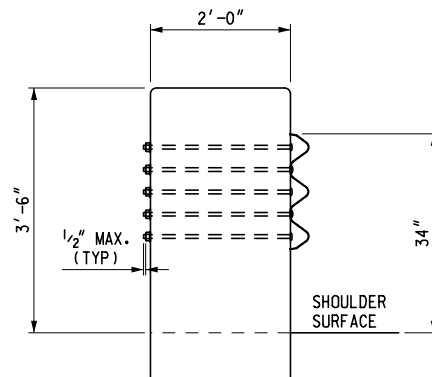
* SEE STANDARD PLAN R-60-SERIES FOR POST SPACING AND GUARDRAIL LAYOUT TO TRANSITION FROM GUARDRAIL, TYPE MGS-8 TO GUARDRAIL ANCHORAGE, BRIDGE, DETAIL T-1.



SECTION A-A



SECTION B-B
UNIFORMLY TRANSITION THE BARRIER FACES FROM SINGLE SLOPE SHAPE TO VERTICAL WALL



SECTION C-C

HIGH STRENGTH $\frac{7}{8}$ " DIAMETER \times 26" LONG HEX HEAD BOLTS WITH 2" MINIMUM THREAD LENGTH AND NUTS WITH ROUND WASHERS FRONT AND BACK SHALL BE USED TO CONNECT GUARDRAIL TO CONCRETE BARRIER, SINGLE FACE TRANSITION SECTION.

DETAILS FOR CONNECTING GUARDRAIL TO CONCRETE BARRIER, SINGLE FACE

GUARDRAIL ANCHORAGE,
BRIDGE, DETAILS

R-67-G-LAP

SHEET
7 OF 8

NOTES:

ALL POSTS, OFFSET BLOCKS, BEAM ELEMENTS, REFLECTORS, AND HARDWARE, (INCLUDING BOLTS, NUTS, AND WASHERS) SHALL CONFORM TO THE CURRENT STANDARD SPECIFICATIONS AND TO THE CURRENT STANDARD PLAN R-60-SERIES, WHERE APPLICABLE, EXCEPT AS SPECIFIED ON THIS STANDARD.

ALL POSTS USED TO CONSTRUCT GUARDRAIL ANCHORAGE, BRIDGE SHALL BE 7'-0" LONG.

THE THRIE BEAM TERMINAL CONNECTOR AND SPECIAL END SHOE SHALL BE THE SAME MATERIAL AS ADJACENT RUN OF GUARDRAIL, EXCEPT THAT THEY SHALL NOT BE LIGHTER THAN 10 GAGE (0.138").

SECTIONS OF THE THRIE BEAM ELEMENT REQUIRED TO BE TWISTED FOR USE IN ANCHORAGE SHALL BE FIELD BENT.

GUARDRAIL BEAM ELEMENTS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC, EXCEPT FOR THE THRIE BEAM TERMINAL CONNECTOR WHICH MAY BE LAPPED IN EITHER DIRECTION.

STANDARD SPLICE BOLTS SHALL BE USED WHEN SPLICING THE THRIE BEAM TERMINAL CONNECTOR TO THE THRIE BEAM EXPANSION SECTION AND WHEN SPLICING THE SPECIAL END SHOE TO THE TRANSITION SECTION. THE SPLICE BOLT NUT SHALL BE INSTALLED FINGER-TIGHT AND SHALL FULLY ENGAGE THE SPLICE BOLT WITH A MINIMUM OF ONE THREAD EXTENDING BEYOND THE NUT. THIS SHALL BE FOLLOWED UP BY UPSETTING THE FIRST THREAD ON THE OUTSIDE OF THE NUT WITH A CENTER PUNCH OR COLD CHISEL, SO THAT IT WILL NOT LOOSEN.

SEE THE CURRENT STANDARD PLAN R-32-SERIES FOR APPROACH CURB AND GUTTER AND DOWNSPOUT HEADER.

GUARDRAIL ANCHORAGE, BRIDGE, DETAILS T-1, T-2, T-5, AND T-6 REQUIRE THAT THE THRIE BEAM TERMINAL CONNECTOR BE ATTACHED TO THE $2\frac{3}{32}$ " x 5" LONG SLOTTED HOLES IN THE THRIE BEAM EXPANSION SECTION.

SEE APPROPRIATE PLANS TO DETERMINE WHETHER GUARDRAIL ANCHORAGE, BRIDGE SPANS A BRIDGE EXPANSION JOINT.

SEE THE CURRENT STANDARD PLAN R-55-SERIES FOR FILLER WALLS AND FILLER WALL END BLOCK.

SEE STANDARD PLAN R-54-SERIES FOR "CONCRETE BARRIER, SINGLE FACE, TYPE --".

CONCRETE BARRIER, SINGLE FACE TRANSITION SECTION SHALL BE INCLUDED IN THE PAY ITEM "CONCRETE BARRIER, SINGLE FACE, TYPE --".

GUARDRAIL ANCHORAGE,
BRIDGE, DETAILS

R-67-G-LAP

SHEET
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